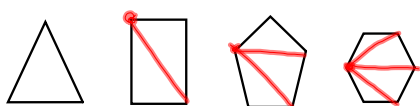
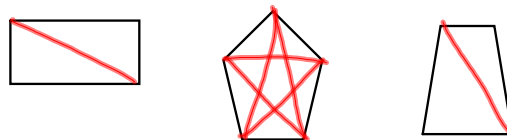


Chapter 8 Quadrilaterals

8-1 Angles of a Polygon

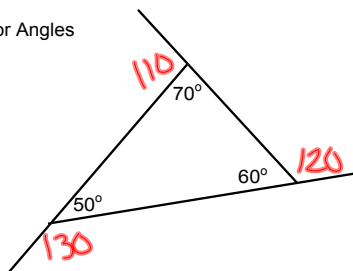
diagonal--segment that connects nonconsecutive vertices



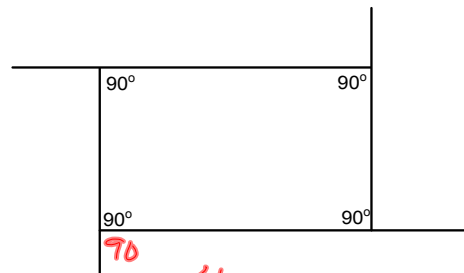
sides	3	4	5	6	n
# of Δ s	1	2	3	4	$(n-2)$
degrees	180	360	540	720	$(n-2)180$

Theorem 8.1 Interior Angle Sum Theorem
 In a convex polygon with n sides, the sum of the interior angles is $(n-2)180$.

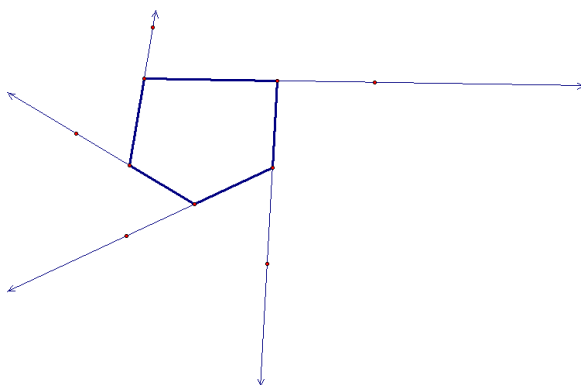
Exterior Angles



$$\text{sum ext} = 360$$

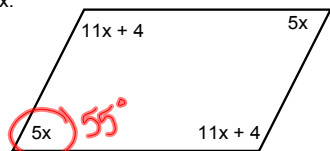


$$4 \times 90 = 360^\circ$$



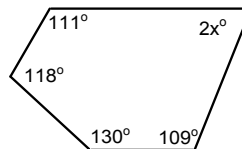
Theorem 8.2 Exterior Angle Sum Theorem--
In a convex polygon, the sum of the measures of the exterior angles, one at each vertex, is 360° .

Solve for x.



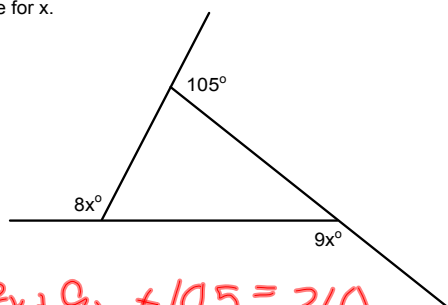
$$\begin{aligned}
 & (1-2)180 \\
 & (4-2)180 \\
 & = 360 \\
 & 5x + 5x + 11x + 4 + 11x + 4 = 360 \\
 & x = 11
 \end{aligned}$$

Solve for x.



$$\begin{aligned}
 & (5-2)180 \\
 & 540 \\
 & 2x + 111 + 118 + 130 + 109 = 540 \\
 & x = 36
 \end{aligned}$$

Solve for x.



$$\begin{aligned}
 & 8x + 9x + 105 = 360 \\
 & x = 15
 \end{aligned}$$

Regular Polygon--Both equilateral and equiangular

n	6
interior angle sum	$(n-2)180$ $(6-2)180$ 720
exterior angle sum	360
<u>Regular</u>	
each interior angle	$\frac{720}{6} = 120$
each exterior angle	$\frac{360}{6} = 60$

Suppl.

n	10
interior angle sum	$(n-2)180$ $(10-2)180$ 1440
exterior angle sum	360
<u>Regular</u>	
each interior angle	$\frac{1440}{10} = 144$
each exterior angle	$\frac{360}{10} = 36$

n	15
interior angle sum	$(n-2)180$ $(15-2)180$ 2340
exterior angle sum	360
<u>Regular</u>	
each interior angle	156
each exterior angle	$\frac{180}{736}$ 24

$= \frac{360}{24}$
*

n	30
interior angle sum	5040
exterior angle sum	360
<u>Regular</u>	
each interior angle	168
each exterior angle	12 $\frac{180}{168}$

$\frac{360}{12}$

n	27
interior angle sum	4500°
exterior angle sum	360
<u>Regular</u>	
each interior angle	$166\frac{2}{3}^\circ$
each exterior angle	$13\frac{1}{3}^\circ$

$\frac{360}{40} = 9$
 $360 \times \frac{3}{40} = 27$

	DO: #1	#2
n	12	24
interior angle sum	1800	3960
exterior angle sum	360	360
<u>Regular</u>		
each interior angle	150°	165°
each exterior angle	30	15°

HW

p407-408

13, 15, 17, 21-23, 27-29, 31, 32,
34, 37-40